

### REMARKS

This is in full and timely response to the above-identified Office Action. The above listing of the claims replaces all prior versions, and listings, of claims in the application. Reexamination and reconsideration in light of the proposed amendments and the following remarks are respectfully requested.

#### Rejections under 35 USC § 112

In this response claims 8, 15 and 20 have been amended in a manner which overcomes the alleged indefiniteness for the reasons recited in paragraph #3 of this Office Action. For example, the term "sufficient" is deleted from claim 8. Claim 15 has been amended to make it clear that the "two stage" nature of the claimed arrangement is such as to enable a "two way" arrangement wherein the roles of the rectifier and inverter are reversible during startup. Claim 20, on the other hand, has been amended to render the recited means clear and distinct.

The rejection under 35 USC § 112, second paragraph, is therefore respectfully traversed.

#### Rejections under 35 USC § 103

- 1) The rejection of claims 1, 7, 13, 16 and 20 under 35 USC § 103(a) as being unpatentable over Cook et al. in view of Geis et al., is respectfully traversed.

The Cook et al. references discloses a motor generator 18 which is indirectly coupled with a rectifier 30 by way of an autotransformer 22 and a feeder 20. During start-up switches 28a, 28b and 28c and 42a, 42b and 42c are reversed and alternating current is supplied to the feeder 20 to crank the prime mover 12 up to self-sustaining speed. See column 3, lines 47-67:

The VSCF system 10 is operable in a normal or generating mode wherein motive power produced by the prime mover

12 is converted to electrical power which is transferred to the loads 14. During this mode of operation, the switches 28a-28c and 42a-42c are in the position shown in FIG. 1. The VSCF system 10 is also operable in a **starting mode**, in which case the **switches 28a-28c and 42a-42c are moved to the positions opposite those shown in FIG.**

**1. During operation in this mode, a source of external AC power** is coupled to the lines 16a-16c and 16n in place of the load 14 and power is delivered through the inductors 50a-50c, the filters 48 and 46 and the inductors 44a-44c to the rectifier 30. The resulting DC power produced by the rectifier 30 is filtered by the DC filter 34 and is converted by the inverter 38 into AC power at a controlled phase and frequency. **This AC power is delivered to the feeder 20 for delivery to the generator 18.** Appropriate control circuitry is provided to control the excitation of the generator 18 to cause it to operate as a motor and thereby bring the prime mover 12 up to self-sustaining speed.  
(Emphasis added)

In this response, the claims have been amended to make it clear that the rectifier is directly connected to the motor/generator port and thus differentiate over the indirect connection arrangement disclosed in Cook et al. as noted above.

Further, the claims have been amended to clarify the fact that the function of at least the claimed rectifier is reversed and acts as an inverter during startup. Cook et al. clearly provides switches and circuits which prevent this and ensure that the rectifier 30 and the inverter 38 always function as a rectifier and an inverter respectively.

A further shortcoming in the rejection resides in the citation of Geis et al. to overcome the admitted shortcoming that Cook et al. does not disclose the inverter providing a neutral output. However, Geis et al. merely discloses at column 4, lines 49-

51 that the neutral connection N or 68 may not be required for all applications. More specifically, column 4 lines 42-51, discloses:

The PWM inverter 49 also includes a capacitor channel 48 across the voltage bus  $V_{bus}$ . The capacitor channel 48 includes upper capacitor 79 and lower capacitor 80 with the midpoint between upper capacitor 79 and lower capacitor 80 connected to the midpoint of IGBT channel 70 through inductor 81. The **neutral connection N or 68** is at the midpoint of IGBT channel 70 while the midpoints of IGBT channels 71, 72, and 73 provide output connections A, B, and C, respectively of output 42. The **neutral connection N or 68 may not be required for all applications**. (Emphasis added)

The above highlighted sections are the only mention of the neutral connection in the reference and there is no indication whatsoever that this has any effect on the precision of the control which is implemented by the Geis et al. arrangement. This disclosure, therefore, does not amount to teachings/motivation which would inspire the hypothetical person of ordinary skill to consider the inclusion of such a connection in the arrangement of Cook et al. The rejection is untenable for at least this reason.

2) The rejection of claims 2-3, 5, 8-9, 14-15, 17-18 and 21-22 under 35 USC § 103(a) as being unpatentable over Cook et al. and Geis et al. further in view of Gilbreth et al., is traversed for at least the same reasons as advanced above. That is to say, this and the undermentioned rejections are all untenable for at least the reason that the teachings in Cook et al, would not be be modified in light of the teachings found in Geis et al.

3) The rejection of claim 4 under 35 USC § 103(a) as being unpatentable over Cook et al., Geis et al. and Gilbreth et al. and further in view of Lakey et al., is traversed for at least the same reasons as advanced above.

4) The rejection of claim 6 under 35 USC § 103(a) as being unpatentable over Cook et al., Geis et al. and Gilbreth et al. and further in view of Hofstetter et al., is traversed for at least the same reasons as advanced above.

Conclusion

It is respectfully submitted that the claims as the are amended in this response are allowable over the art of record for at least the reasons advanced above. Favorable reconsideration and allowance of this application is courteously solicited.

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**AMENDMENTS TO THE DRAWINGS**

In this response, Fig. 1 has been amended to add a prime mover in the form of a turbine/diesel engine which is operatively connected with the motor/generator 120. This amendment is such as to overcome the objection under 37 CFR 1.83(a) in that it illustrates a prime mover in the form of a turbine of a diesel engine. A replacement sheet bearing this amendment is submitted with this response.